(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 July 2003 (24.07.2003)

PCT

(10) International Publication Number
WO 03/059821 A1

(51) International Patent Classification[7]: C02F 1/32, 1/38, B01D 21/26

(21) International Application Number: PCT/US02/41909

(22) International Filing Date:
31 December 2002 (31.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
P20020093/BO4C/MZ
9 January 2002 (09.01.2002) NO

(71) Applicants and
(72) Inventors: **NILSEN, Birgir** [—/US]; 6 Howes Avenue, Stamford, CT 06906 (US). **NILSEN, Halvor** [—/NO]; Randabergvn. 101, N-4027 Stavanger (NO).

(74) Agent: **WALSH, Patrick, J.**; 400 Main Street, Stamford, CT 06901 (US).

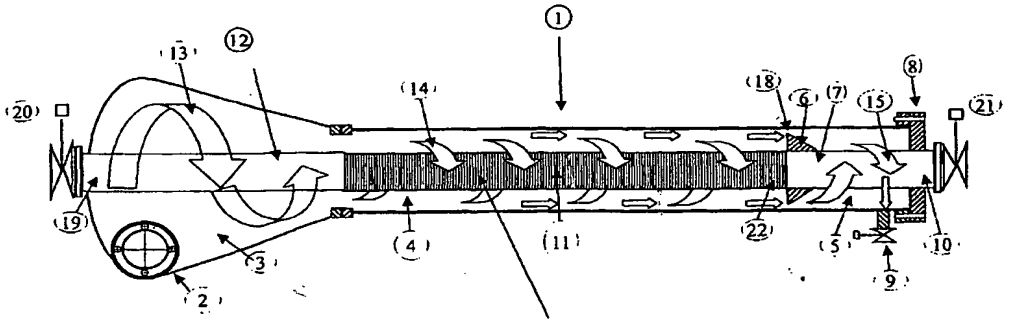
(81) Designated States *(national)*: AU, BR, CA, CN, IN, JP, KR, SG, US.

(84) Designated States *(regional)*: European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS AND METHOD FOR SEPARATING AND FILTERING PARTICLES AND ORGANISMS FROM FLOWING LIQUIDS



(57) Abstract: A device (1) for separating and filtering particles and organisms from a high volume flowing liquid operating under low pressure. The device (1) includes a conical or cylindrical shape inlet chamber (3) were liquids enter tangentially creating a circular flow without creating a vortex, the liquids accelerate into a separation and filter chamber (14) where the liquids spin around a longitudinally disposed filter element (11) in the center of the chamber (14), with the centrifugal forces separating out larger and heavier particles towards the perimeter of the separation and filter chamber(14), and where smaller particles having a specific gravity closer to that of the liquid are filtered when the liquid penetrates through the filter element wall into the center of the filter element and flows out one of the longitudinal outlets of the unit. Ultraviolet light irreparably damages bacteria, microorganisms and pathogens contained in processed ballast water and may be incorporated as part of the system.

WO 03/059821 A1